



Official Journal of the  
Neuroscience Society of Nigeria  
(NSN)

ISSN 1116-4182

## EVALUATION OF THE NEUROPHARMACOLOGICAL ACTIVITIES OF HYDROETHANOLIC STEM EXTRACT OF *Massularia acuminata* (G. DON) BULLOCK (RUBIACEAE) ON MICE

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Received: ..... July 2019

Accepted: ..... September 2019

### ABSTRACT

In traditional South-Western Nigerian medicine, the stem of *Massularia acuminata* (G. Don) Bullock (Rubiaceae) is used as chewing stick to improve oral health and for management of mental disorders. The aim of the study was to evaluate the neuropharmacological effects of *M. acuminata* hydroethanolic stem extract on mice. Anxiolytic activity of *M. acuminata* (50, 100 and 200 mg/kg p.o.) was evaluated using the elevated plus maze, hole board and open field tests. Forced swim and tail suspension tests were used to investigate antidepressant activity, while inclined plane and traction tests were used to evaluate muscle relaxant activity. *M. acuminata* extract (100 and 200 mg/kg p.o.) significantly ( $p < 0.05$ ) increased number of open arms entries and time spent in open arms compared to control, thereby showing anxiolytic activity. This was comparable to that of diazepam (1 mg/kg). However, the extract at all doses tested did not show significant effect relative to control in hole board and open field tests. Moreover, *M. acuminata* extract did not show significant decrease in duration of immobility compared to control in forced swim and tail suspension models for depression. Also, in the inclined plane and traction tests, there was no observed muscle relaxant activity for *M. acuminata* compared to control. The results of this study showed that hydroethanolic stem extract of *M. acuminata* possesses anxiolytic activity, while it lacks significant antidepressant and muscle relaxant properties in mice. One or more of the phytochemicals present in the extract may be responsible for its anxiolytic activity. This finding gives some scientific evidence behind the folkloric use of the plant.

**Key words:** *Massularia acuminata*, Elevated plus maze, Diazepam, Open field test, Traction test

### INTRODUCTION

Mood disorders are severe and chronic diseases, most of which could be classified as lifelong disorders (Marneros 2006). These disorders rank among the major health problems worldwide because they are highly prevalent in the general population, and also because they cause significant loss of quality of life and social functioning of an affected individual (Jacobi et al. 2005). They were shown to account for 21.2% of the years lived with disabilities worldwide (Vos et al. 2013).

The plant *Massularia acuminata* (G. Don) Bullock belongs to the family Rubiaceae. It is known to have a high inhibitory activity against some bacteria species (Barnabas and Nagarajan 1998). In Sierra Leone, the juice obtained from the fruit of the plant is used as antibiotics for treating eye infections (Yakubu et al. 2011). In traditional South-Western Nigerian

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